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FILE COVERS 1907 - 15 Jan 2004 VOL 140 ISS 3
FILE LAST UPDATED: 14 Jan 2004 (20040114/ED)

This file contains CAS Registry Numbers for easy and accurate
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L1	1	SEA	FILE=HCAPLUS	ABB=ON	US2002013224/PN
L4	4359	SEA	FILE=REGISTRY	ABB=ON	(ER(L)C(L)H(L)(SI OR O))/ELS
L5	580	SEA	FILE=REGISTRY	ABB=ON	L4(L)4/ELC.SUB
L6	929	SEA	FILE=HCAPLUS	ABB=ON	L5
L7	35	SEA	FILE=HCAPLUS	ABB=ON	L6(L)CAT/RL
L8	1	SEA	FILE=HCAPLUS	ABB=ON	L1 AND L7
L9	3	SEA	FILE=HCAPLUS	ABB=ON	L7 AND COMPOSITION?
L10	2	SEA	FILE=HCAPLUS	ABB=ON	L7 AND COMPNS
L11	0	SEA	FILE=HCAPLUS	ABB=ON	L7 AND ARRAY?

Compounds with
Fn and carbon
and hydrogen and
(silicon or oxygen)

L12 11 SEA FILE=HCAPLUS ABB=ON L6(L)CAT/RL(L)POLYMERI?
L13 13 SEA FILE=HCAPLUS ABB=ON (L8 OR L9 OR L10 OR L11 OR L12)

=> d l13 all hitstr 1-13

L13 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:823907 HCAPLUS
ED Entered STN: 21 Oct 2003
TI Characteristics, kinetics and mechanism of ϵ -caprolactone
polymerization by lanthanide tris(2,6-dimethylphenolate)s
AU Zhang, Lifang; Yu, Cuiping; Shen, Zhiquan
CS Institute of Polymer Science, Zhejiang University, Hangzhou, 310027, Peop.
Rep. China
SO Polymer Bulletin (Heidelberg, Germany) (2003), 51(1), 47-53
CODEN: POBUDR; ISSN: 0170-0839
PB Springer-Verlag
DT Journal
LA English
CC 35-3 (Chemistry of Synthetic High Polymers)
AB Polycaprolactone was synthesized via the ring-opening polymerization of
 ϵ -caprolactone (ϵ -CL) with lanthanide (La, Nd, Sm, Gd, Er,
Y) tris(2,6--dimethylphenolate) initiators under mild conditions. The
effects of reaction conditions on the polymerization are discussed. Kinetic
studies indicate that the polymerization rate is first order with respect to
both
 ϵ -CL concentration and catalyst concentration and the overall reaction
activation energy is 62.3 kJ/mol. ¹H NMR end group anal. of the polymer
indicates that the polymerization proceeds according to a
coordination-insertion
mechanism with acyl-oxygen bond cleavage of the monomer.
ST caprolactone ring opening polymn kinetics lanthanide phenolate catalyst
IT Rare earth complexes
RL: CAT (Catalyst use); USES (Uses)
(caprolactone polymerization by lanthanide tris(dimethylphenolates))
IT Polyesters
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(caprolactone-based; from caprolactone polymerization by lanthanide
tris(dimethylphenolates))
IT Polymerization catalysts
(ring-opening; caprolactone polymerization by lanthanide
tris(dimethylphenolates))
IT Polymerization
(ring-opening; mechanism of caprolactone polymerization by lanthanide
tris(dimethylphenolates))
IT Polymerization kinetics
(ring-opening; of caprolactone polymerization by lanthanide
tris(dimethylphenolates))
IT 635316-66-4 635316-67-5 635316-68-6 635316-69-7 **635316-70-0**
635316-72-2
RL: **CAT (Catalyst use)**; USES (Uses)
(caprolactone **polymerization** by lanthanide tris(dimethylphenolates))
IT 24980-41-4P, Polycaprolactone 25248-42-4P, Polycaprolactone
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(from caprolactone polymerization by lanthanide tris(dimethylphenolates))
IT 502-44-3, ϵ -Caprolactone
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(mechanism and kinetics of polymerization by lanthanide

tris(dimethylphenolates))

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Hitchcock, P; J Chem Soc, Chem Commun 1983, P1499 HCAPLUS
- (2) Jacobs, C; Macromolecules 1991, V24, P3027 HCAPLUS
- (3) Koleske, J; J Polym Sci, Polym Phys Ed 1969, V7, P897 HCAPLUS
- (4) Ling, J; Macro Chem Phys 2002, V203, P735 HCAPLUS
- (5) Ling, J; Macromolecules 2001, V34, P7613 HCAPLUS
- (6) Martin, E; Macromolecules 2000, V33, P1530 HCAPLUS
- (7) Shen, Y; Macromolecules 1996, V29, P3441 HCAPLUS
- (8) Shen, Y; Polym J 1995, V27, P59 HCAPLUS
- (9) Shen, Z; Chin J of Chem 2002, V20, P1369 HCAPLUS
- (10) Shen, Z; J Polym Sci A: Polym Chem 1994, V32, P597 HCAPLUS
- (11) Stevels, W; Macromolecules 1996, V29, P3332 HCAPLUS
- (12) Stevels, W; Polym Prep 1996, V37, P190 HCAPLUS
- (13) Taylor, M; Inorg Nucl Chem 1962, V24, P387 HCAPLUS
- (14) Yamashita, M; Macromolecules 1996, V29, P1798 HCAPLUS
- (15) Yasuda, H; Makromol Chem, Macromol Symp 1993, V67, P187 HCAPLUS

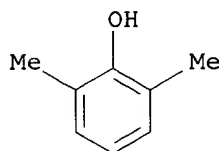
IT 635316-70-0

RL: CAT (Catalyst use); USES (Uses)

(caprolactone polymerization by lanthanide tris(dimethylphenolates))

RN 635316-70-0 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED



●1/3 Er(III)

L13 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:725348 HCAPLUS

DN 140:5344

ED Entered STN: 16 Sep 2003

TI Ring-opening polymerization of ϵ -caprolactone using rare earth tris(4-tert-butylphenolate)s as a single component initiator

AU Yu, Cuiping; Zhang, Lifang; Shen, Zhiqian

CS Department of Polymer Science and Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China

SO European Polymer Journal (2003), 39(10), 2035-2039

CODEN: EUPJAG; ISSN: 0014-3057

PB Elsevier Science B.V.

DT Journal

LA English

CC 35-3 (Chemistry of Synthetic High Polymers)

AB Ring-opening polymerization of ϵ -caprolactone has been carried out by using single-component rare earth tris(4-tert-butylphenolate) initiators for the first time. The effects of rare earth element, solvent, monomer and initiator concentration, and reaction time on the polymerization were investigated.

The kinetics indicated that the polymerization rate is first order with respect to monomer and initiator concns. The overall activation energy of the ring-opening polymerization is 51.9 kJ/mol. Mechanism studies showed that monomer inserted into the growing chains with an acyl-oxygen bond scission rather than an alkyl-oxygen bond breaking.

- ST caprolactone polymn kinetics rare earth phenolate catalyst
IT Polyesters, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(caprolactone-based; from polymerization using rare earth tris(tert-butylphenolate) single-component initiators)
IT Solvent polarity effect
(on caprolactone ring-opening polymerization with rare earth tris(tert-butylphenolate) single-component initiators)
IT Polymerization kinetics
(ring-opening; of caprolactone using rare earth tris(tert-butylphenolate) single-component initiators)
IT Polymerization catalysts
(ring-opening; rare earth tris(tert-butylphenolate) single-component initiators for caprolactone)
IT 87045-62-3 627458-68-8 627458-73-5 **627458-74-6** 627458-75-7
RL: CAT (Catalyst use); USES (Uses)
(caprolactone **polymerization** using rare earth tris(tert-butylphenolate) single-component initiators)
IT 75-09-2, Methylene chloride, uses 108-88-3, Toluene, uses 109-99-9, THF, uses 110-54-3, Hexane, uses
RL: NUU (Other use, unclassified); USES (Uses)
(caprolactone polymerization using rare earth tris(tert-butylphenolate) single-component initiators in)
IT 24980-41-4P, Poly- ϵ -caprolactone 25248-42-4P, Poly[oxy(1-oxo-1,6-hexanediyl)]
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(from polymerization of caprolactone using rare earth tris(tert-butylphenolate) single-component initiators)
IT 502-44-3, ϵ -Caprolactone
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(kinetics of polymerization using rare earth tris(tert-butylphenolate) single-component initiators)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

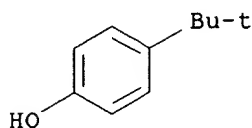
- (1) Anon; Polymer handbook. 2nd ed 1975, PIII-33
- (2) Hitchcock, P; J Chem Soc Chem Commun 1983, P1499 HCAPLUS
- (3) Koleske, J; J Polym Sci Part A-2 1969, V7, P897 HCAPLUS
- (4) Ling, J; Macromol Chem Phys 2002, V203, P735 HCAPLUS
- (5) Okada, M; Prog Polym Sci 2002, V27, P87 HCAPLUS
- (6) Pitt, C; Controlled drug release of bioactive materials 1980, P19 HCAPLUS
- (7) Rokicki, G; Prog Polym Sci 2000, V25, P259 HCAPLUS
- (8) Shen, Y; Macromolecules 1996, V29, P3441 HCAPLUS
- (9) Shen, Y; Macromolecules 1996, V29, P8289 HCAPLUS
- (10) Shen, Y; Polym J 1995, V27, P59 HCAPLUS
- (11) Shen, Z; J Polym Sci Part A: Polym Chem 1994, V32, P597 HCAPLUS
- (12) Taylor, M; Inorg Nucl Chem 1962, V24, P387 HCAPLUS
- (13) Yasuda, H; Prog Polym Sci 2000, V25, P573 HCAPLUS

IT **627458-74-6**

RL: CAT (Catalyst use); USES (Uses)
(caprolactone **polymerization** using rare earth tris(tert-butylphenolate) single-component initiators)

RN 627458-74-6 HCAPLUS

CN Phenol, 4-(1,1-dimethylethyl)-, erbium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Er(III)

L13 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:11121 HCAPLUS

DN 136:70258

ED Entered STN: 04 Jan 2002

TI Processes for polymerization catalysts, metal complexes and **compositions** containing erbium

IN Diamond, Gary M.; Murphy, Vince; Leclerc, Margarete K.; Goh, Christopher; Hall, Keith A.; Lapointe, Anne Marie; Boussie, Thomas; Lund, Cheryl

PA USA

SO U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM C08F004-72

ICS C08F004-06

NCL 526170000

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002002257	A1	20020103	US 2001-780704	20010209
	US 2002013224	A1	20020131	US 2001-781104	20010208 <--
PRAI	US 2000-181123P	P	20000208		

OS MARPAT 136:70258

AB Processes for polymerization of monomers, particularly olefins, into polymers use

erbium **compns.**, metal-ligand complexes and **compns.**

The processes proceed with good conversion in a number of different methods.

Thus, a catalyst system containing Er(CH(SiMe₃)₂)₃, 2,3-dihydrido-2,2-dimethyl-7-benzofuranol (ligand), AlEt₃, and triphenylcarbenium tetrakis(pentafluorophenyl)borate was used to prepare ethylene-1-octene copolymer.

ST erbium metal complex ethylene octene polymn; ligand erbium metal complex olefin polymn

IT Polymerization catalysts

(catalysts containing erbium metal complexes for olefin polymerization)

IT Polyolefins

RL: IMF (Industrial manufacture); PREP (Preparation)

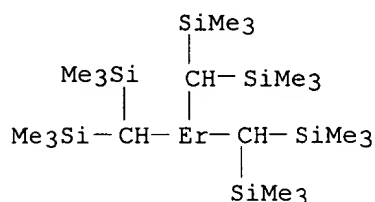
(catalysts containing erbium metal complexes for olefin polymerization)

IT 97-93-8, Triethylaluminum, uses 1191-15-7, Diisobutylaluminum hydride 118612-00-3 136040-19-2, Triphenylcarbenium

tetrakis(pentafluorophenyl)borate **285995-71-3**

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts containing erbium metal complexes for olefin polymerization)
 IT 26221-73-8P, Ethylene-1-octene copolymer
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (catalysts containing erbium metal complexes for olefin polymerization)
 IT 1563-38-8, 2,3-Dihydro-2,2-dimethyl-7-benzofuranol 383889-16-5
 383889-17-6 383889-18-7
 RL: CAT (Catalyst use); USES (Uses)
 (ligand; catalysts containing erbium metal complexes for olefin polymerization)
 IT 285995-71-3
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts containing erbium metal complexes for olefin polymerization)
 RN 285995-71-3 HCAPLUS
 CN Erbium, tris[bis(trimethylsilyl)methyl]- (9CI) (CA INDEX NAME)



L13 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:649048 HCAPLUS
 DN 133:335513
 ED Entered STN: 18 Sep 2000
 TI Catalytic synthesis of polymethyl methacrylate by mixed ligand schiff base lanthanocene complexes
 AU Muhhannad, Yousaf; Huang, Jiling; Feng, Zuofeng; Qian, Yanlong; Sun, Junquan; Pan, Zhida
 CS Laboratory of Organometallic Chemistry, East China University of Science and Technology, Hangzhou, 200237, Peop. Rep. China
 SO Cuihua Xuebao (2000), 21(4), 293-294
 CODEN: THHPD3; ISSN: 0253-9837
 PB Kexue Chubanshe
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 29
 AB The preparation of high-mol.-weight PMMA using mixed ligand lanthanocene complex catalyst was described. The apparent rate of polymerization of Me methacrylate increased with increasing ionic radius of the metal ($\text{Sm} > \text{Y} > \text{Yb} > \text{Lu}$) and decreased with increasing steric bulkiness of the auxiliary ligands ($\text{C}_5\text{H}_5 > \text{C}_5\text{Me}_5$). The monomer conversion and mol. weight of PMMA increased with increasing polymerization temperature
 ST Schiff base lanthanocene catalyst polymn methacrylate; PMMA prepn Schiff base lanthanocene
 IT Polymerization catalysts
 (metallocene; polymerization of Me methacrylate in presence of mixed ligand Schiff base lanthanocene complex catalysts)
 IT 275826-78-3 304463-66-9 304463-67-0 304463-69-2 304463-71-6
 304463-73-8 304463-75-0 304463-77-2 304463-79-4 304463-81-8
 RL: CAT (Catalyst use); USES (Uses)

(catalysts; **polymerization** of Me methacrylate in presence of mixed ligand Schiff base lanthanocene complex catalysts)

IT 9011-14-7P, PMMA

RL: SPN (Synthetic preparation); PREP (Preparation)

(polymerization of Me methacrylate in presence of mixed ligand Schiff base lanthanocene complex catalysts)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Henrici-Olive, G; The Chemistry of the Catalyzed Hydrogenation of Carbon Monoxide 1983, P152

(2) Jones, R; Chem Rev 1979, V79(2), P139 HCAPLUS

(3) Li, Y; Macromolecules 1997, V30(7), P1875 HCAPLUS

(4) Sun, J; Gaofenzi Xuebao (Aata Polym Sin) 1998, 1, P96

(5) Yasuda, H; Macromol Chem Phys 1995, V196(8), P2417 HCAPLUS

(6) Yasuda, H; Macromolecules 1993, V26(26), P7134 HCAPLUS

IT 304463-81-8

RL: CAT (Catalyst use); USES (Uses)

(catalysts; **polymerization** of Me methacrylate in presence of mixed ligand Schiff base lanthanocene complex catalysts)

RN 304463-81-8 HCAPLUS

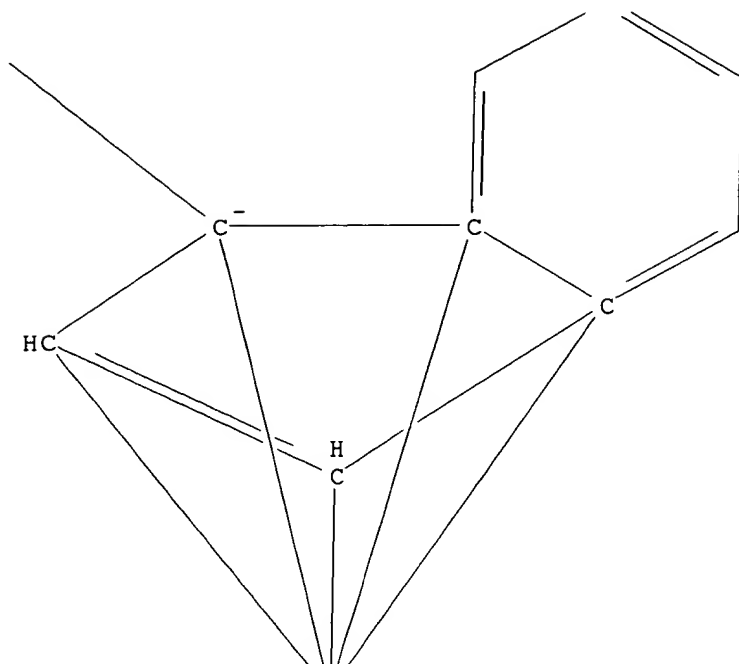
CN Erbium, (η^8 -1,3,5,7-cyclooctatetraene)[(1,2,3,3a,7a- η)-1-[2-(methoxy- κ O)ethyl]-1H-inden-1-yl](tetrahydrofuran)- (9CI) (CA INDEX NAME)

PAGE 1-A

PAGE 1-B

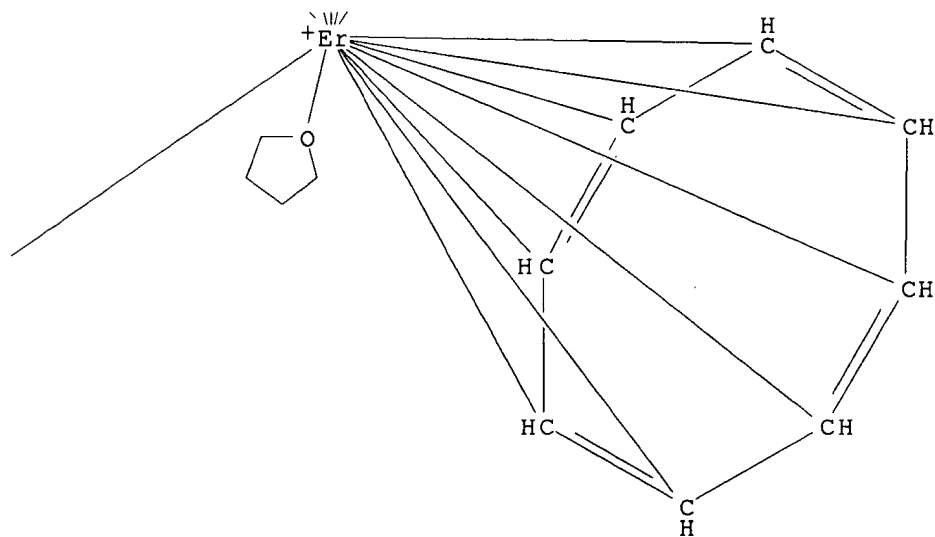
PAGE 2-A

PAGE 2-B



* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 3-B



AN 2000:621220 HCAPLUS
DN 133:350312
ED Entered STN: 07 Sep 2000
TI Cs-Symmetric ansa-Lanthanocenes Designed for Stereospecific Polymerization of Methyl Methacrylate. Synthesis and Structural Characterization of Silylene-Bridged Fluorenyl Cyclopentadienyl Lanthanide Halides, Amides, and Hydrocarbyls
AU Qian, Changtao; Nie, Wanli; Sun, Jie
CS Laboratory of Organometallic Chemistry Shanghai Institute of Organic Chemistry, Chinese Academy Of Sciences, Shanghai, 200032, Peop. Rep. China
SO Organometallics (2000), 19(20), 4134-4140
CODEN: ORGND7; ISSN: 0276-7333
PB American Chemical Society
DT Journal
LA English
CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 35, 75
OS CASREACT 133:350312
AB A series of new Cs-sym. organolanthanocene chlorides, $[R_2Si(Flu)(R'Cp)Ln(\mu-Cl)]_2$ (Flu = C₁₃H₈, fluorenyl; Cp = C₅H₃) (R = Me, R' = H, Ln = Y (1), Lu (2), Dy (3), Er (4); R = Ph, R' = tBu, Ln = Y (5), Dy (6)), has been synthesized by the reaction of anhydrous lanthanide chloride with the dilithium salt of the ligand Me₂Si(FluH)(CpH). Treatment of the resulting chlorides with ME(TMS)₂ (M = Li or K, E = N, CH) gave the amide and hydrocarbyl derivs. Me₂Si(Flu)(Cp)LnE(TMS)₂ (E = N, Ln = Dy (7), Er (9); E = CH, Ln = Dy (8), Er (10)). X-ray structures of chloride compds. 1.2PhMe and 5. PhMe reveal unusual Cp-SiMe₂-Cp bridging dimeric coordination. X-ray structures of amide complexes 7 and 9 and hydrocarbyl complex 8 were also determined. All of the amide and hydrocarbyl complexes show normal chelating structure and exhibit apparently intramol. γ -agostic Ln-Me-Si interaction. These complexes are active for the polymerization of Me methacrylate.
ST fluorenyl lanthanocene dimethylsilylene bridged binuclear structure methacrylate polymn catalyst; crystal structure lanthanocene amide hydrocarbyl dimethylsilylene bridged chloride complex; mol structure lanthanocene amide hydrocarbyl dimethylsilylene bridged chloride complex; yttrium fluorenyl cyclopentadienyl dimethylsilylene bridged prepn structure; lutetium fluorenyl cyclopentadienyl dimethylsilylene bridged prepn structure; dysprosium fluorenyl cyclopentadienyl dimethylsilylene bridged prepn structure; erbium fluorenyl cyclopentadienyl dimethylsilylene bridged prepn structure
IT Bond
(agostic, γ -agostic Ln-Me-Si interaction; synthesis and structural characterization of silylene-bridged fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls as stereospecific polymerization catalysts)
IT Crystal structure
Molecular structure
(of lanthanocene amide, hydrocarbyl, and 1 dimethylsilylene bridged chloride complexes)
IT Polymerization catalysts
(stereospecific; synthesis and structural characterization of silylene-bridged fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls as stereospecific polymerization catalysts)
IT Crystal structure
Molecular structure
(synthesis and structural characterization of silylene-bridged fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls

- as stereospecific polymerization catalysts)
- IT Rare earth complexes
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(synthesis and structural characterization of silylene-bridged
fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls
as stereospecific polymerization catalysts)
- IT 305813-74-5P 305813-75-6P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation); USES (Uses)
(crystal structure, intermol. Dy-Me-Si agostic interaction; synthesis
and structural characterization of silylene-bridged fluorenyl
cyclopentadienyl lanthanide halides, amides, and hydrocarbyls as
stereospecific polymerization catalysts)
- IT 305813-76-7P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation); USES (Uses)
(crystal structure, intermol. Er-Me-Si agostic interaction; synthesis
and structural characterization of silylene-bridged fluorenyl
cyclopentadienyl lanthanide halides, amides, and hydrocarbyls as
stereospecific polymerization catalysts)
- IT 305813-66-5P 305813-72-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; synthesis and structural characterization of
silylene-bridged fluorenyl cyclopentadienyl lanthanide halides, amides,
and hydrocarbyls as stereospecific polymerization catalysts)
- IT **305813-77-8P**
RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)
(synthesis and structural characterization of silylene-bridged
fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls
as stereospecific **polymerization** catalysts)
- IT 305813-69-8P 305813-70-1P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(synthesis and structural characterization of silylene-bridged
fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls
as stereospecific polymerization catalysts)
- IT 305813-68-7P 305813-73-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and structural characterization of silylene-bridged
fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls
as stereospecific polymerization catalysts)
- IT 10025-74-8, Dysprosium trichloride 10099-66-8, Lutetium trichloride
10138-41-7, Erbium trichloride 10361-92-9, Yttrium trichloride
40949-94-8 41823-71-6 305813-64-3 305813-78-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and structural characterization of silylene-bridged
fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls
as stereospecific polymerization catalysts)
- IT 9011-14-7P, Poly(methyl methacrylate)
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis and structural characterization of silylene-bridged
fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls
as stereospecific polymerization catalysts)
- RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Abriel, W; J Organomet Chem 1986, V302, P363 HCAPLUS

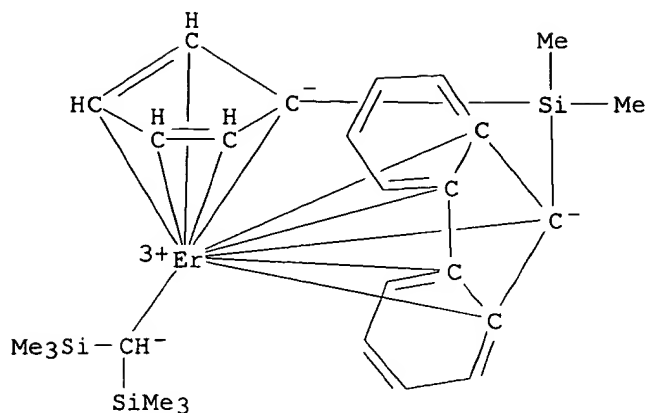
- (2) Akhnoukh, T; J Organomet Chem 1991, V408, P47 HCAPLUS
- (3) Batgur, c; Inorg Chem 1985, V24, P2539
- (4) Chapman, J; J Chem Soc 1950, P579 HCAPLUS
- (5) Chen, Y; J Organomet Chem 1995, V497, P1 HCAPLUS
- (6) Coughlin, E; Inorg Chim Acta 1996, V242, P205 HCAPLUS
- (7) Evans, W; Organometallics 1993, V12, P2618 HCAPLUS
- (8) Ewen, J; J Am Chem Soc 1987, V109, P6544 HCAPLUS
- (9) Ewen, J; J Am Chem Soc 1988, V110, P6255 HCAPLUS
- (10) Fendrick, c; Organometallics 1984, V3, P819 HCAPLUS
- (11) Giardello, M; J Am Chem Soc 1994, V116, P10212 HCAPLUS
- (12) Giardello, M; J Am Chem Soc 1995, V117, P327
- (13) Haar, c; Organometallics 1996, V15, P1765 HCAPLUS
- (14) Heeres, H; Organometallics 1988, V7, P2495 HCAPLUS
- (15) Hock, N; Angew Chem, Int Ed Engl 1986, V25(5), P738
- (16) Ihara, E; Organometallics 1998, V17, P3945 HCAPLUS
- (17) Jeske, G; J Am Chem Soc 1985, V107, P8103 HCAPLUS
- (18) Jutzi, P; Chem Ber 1986, V119, P1750 HCAPLUS
- (19) Kaminsky, W; Angew Chem, Int Ed Engl 1985, V24, P507
- (20) Klooster, W; J Am Chem Soc 1999, V121, P1381 HCAPLUS
- (21) Koga, N; J Am Chem Soc 1988, V110, P108 HCAPLUS
- (22) Lee, M; Organometallics 1999, V18, P5124 HCAPLUS
- (23) Lueken, H; Inorg Chim Acta 1989, V156, P119 HCAPLUS
- (24) Marsh, R; Acta Crystallogr 1992, VC48, P1773 HCAPLUS
- (25) Okuda, J; Angew Chem, Int Ed Engl 1992, V31, P47
- (26) Patsidis, K; J Organomet Chem 1996, V509, P63 HCAPLUS
- (27) Piccolirovazzi, N; Organometallics 1990, V9, P3098 HCAPLUS
- (28) Qaio, K; J Organomet Chem 1993, V456, P185
- (29) Qian, c; J Chem Soc, Dalton Trans 1999, P3283 HCAPLUS
- (30) Qiao, K; Organometallics 1990, V9, P1361 HCAPLUS
- (31) Razavi, A; J Organomet Chem 1993, V459, P117 HCAPLUS
- (32) Rieger, B; J Organomet Chem 1982, V428, PC23
- (33) Smikth, J; J Organomet Chem 1979, V173, P175
- (34) Stern, D; J Am Chem Soc 1990, V112, P9558 HCAPLUS
- (35) Stern, D; J Am Chem Soc 1990, V112, P9558 HCAPLUS
- (36) Tatsumi, K; J Am Chem Soc 1987, V109, P3195 HCAPLUS
- (37) Tian, S; Organometallics 1999, V18, P2568 HCAPLUS
- (38) Yasuda, H; ACS Symp Ser 1998, V704, P149 HCAPLUS
- (39) Yasuda, H; Adv Polym Sci 1997, V133, P53 HCAPLUS
- (40) Yasuda, H; Bull Chem Soc Jpn 1997, V70, P1745 HCAPLUS
- (41) Yasuda, H; Macromolecules 1993, V26, P7134 HCAPLUS
- (42) Yasuda, H; Prog Polym Sci 1993, V18, P1097 HCAPLUS
- (43) Yasuda, Y; Macromol Chem Phys 1995, V196, P2417

IT 305813-77-8P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis and structural characterization of silylene-bridged fluorenyl cyclopentadienyl lanthanide halides, amides, and hydrocarbyls as stereospecific **polymerization** catalysts)

RN 305813-77-8 HCAPLUS

CN Erbium, [bis(trimethylsilyl)methyl][η 10-2,4-cyclopentadien-1-ylidene(dimethylsilylene)-9H-fluoren-9-ylidene]- (9CI) (CA INDEX NAME)



L13 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:592675 HCAPLUS
 DN 133:194953
 ED Entered STN: 25 Aug 2000
 TI **Compositions** comprising nickel and their use as catalyst in
 oxidative dehydrogenation of alkanes
 IN Liu, Yumin
 PA Symyx Technologies, Inc., USA
 SO PCT Int. Appl., 204 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C07C005-48
 ICS B01J023-755; B01J023-76; C01G053-04
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 67
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000048971	A1	20000824	WO 2000-US4478	20000222
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	US 6355854	B1	20020312	US 1999-255371	19990222
	US 6436871	B1	20020820	US 1999-255384	19990222
	EP 1153005	A1	20011114	EP 2000-914659	20000222
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
	US 2001025129	A1	20010927	US 2001-815914	20010322
	US 2003097034	A1	20030522	US 2001-2339	20011025
	US 6677497	B2	20040113		
PRAI	US 1999-255371	A	19990222		
	US 1999-255384	A	19990222		
	WO 2000-US4478	W	20000222		

US 2001-815914 A1 20010322

- AB Catalysts and methods for alkane oxydehydrogenation are disclosed. The catalysts of the invention generally comprise (i) nickel or a nickel-containing compound and (ii) at least one or more of titanium (Ti), tantalum (Ta), niobium (Nb), cobalt (Co), hafnium (Hf), tungsten (W), yttrium (Y), zinc (Zn), zirconium (Zr), or aluminum (Al), or a compound containing one or more of such element(s). In preferred embodiments, the catalyst is a supported catalyst, the alkane is selected from the group consisting of ethane, propane, isopropane, isobutane, n-butane and Et chloride, mol. oxygen is co-fed with the alkane to a reaction zone maintained at a temperature of 250-350°, and the ethane is oxidatively dehydrogenated to form the corresponding the alkene with an alkane conversion of at least about 10% and an alkene selectivity of at least about 70%.
- ST nickel oxidative dehydrogenation catalyst alkane alkene
- IT Alkenes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(**compsns.** comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)
- IT Alkanes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**compsns.** comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)
- IT Dehydrogenation catalysts
(oxidative; **compsns.** comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)
- IT 813-93-4, Bismuth citrate 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten Oxide, uses 1344-28-1, Aluminum oxide, uses 2800-96-6, Tin acetate 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-48-4, Cobalt, uses 7440-58-6, Hafnium, uses 7440-64-4, Ytterbium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 10042-76-9, Strontium nitrate 10045-95-1, Neodymium nitrate 10103-47-6, Chromium nitrate 10124-37-5, Calcium nitrate 10141-05-6, Cobalt nitrate 10168-81-7, Gadolinium nitrate 10361-83-8, Samarium nitrate 10377-60-3, Magnesium nitrate 10402-29-6, Copper nitrate 11099-02-8, Nickel oxide 11104-61-3, Cobalt oxide 12055-23-1, Hafnium oxide 12626-96-9, Nickel niobium oxide 12627-00-8, Niobium oxide 12651-43-3, Ytterbium Oxide 12653-76-8, Nickel titanium oxide 12737-02-9, Antimony acetate 13138-45-9, Nickel nitrate 13463-67-7, Titanium oxide, uses 13768-67-7, Ytterbium nitrate 14677-00-0, Titanium oxalate 14974-48-2, Vanadium oxalate 17309-53-4, Cerium nitrate 18779-07-2, Dysprosium acetate 21348-59-4, Niobium oxalate 21348-60-7, Tantalum oxalate 25519-10-2D, Erbium acetate, hydrate 35725-34-9, Ytterbium nitrate pentahydrate 37243-80-4, Nickel tantalum oxide 59763-75-6, Tantalum oxide 165374-57-2, Bismuth nickel niobium oxide 289471-59-6, Cerium nickel tantalum oxide 289471-60-9, Cerium nickel niobium tantalum oxide 289471-61-0, Dysprosium nickel tantalum oxide 289471-62-1, Dysprosium nickel niobium oxide 289471-63-2, Erbium nickel niobium oxide 289471-64-3, Neodymium nickel tantalum oxide 289471-65-4, Nickel niobium samarium oxide 289471-66-5, Nickel samarium tantalum oxide 289471-67-6, Nickel titanium ytterbium oxide 289471-68-7, Cerium nickel niobium oxide 289471-69-8, Nickel niobium samarium tantalum oxide 289471-70-1, Nickel niobium praseodymium oxide 289471-71-2, Nickel tantalum zirconium oxide 289471-72-3, Gadolinium nickel tantalum oxide 289471-73-4, Gadolinium nickel niobium oxide 289471-74-5, Antimony nickel niobium oxide 289471-75-6, Bismuth nickel tantalum oxide

289471-76-7, Nickel niobium ytterbium oxide 289471-77-8, Nickel tantalum ytterbium oxide 289471-78-9, Nickel niobium tantalum oxide

RL: CAT (Catalyst use); USES (Uses)

(comps. comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)

IT 64-17-5P, Ethanol, preparation 64-19-7P, Acetic acid, preparation
67-64-1P, Acetone, preparation 75-01-4P, Vinyl chloride, preparation
75-07-0P, Acetaldehyde, preparation 75-21-8P, Ethylene oxide,
preparation 75-56-9P, Propylene oxide, preparation 78-93-3P,
Methylethylketone, preparation 78-94-4P, Methylvinylketone, preparation
79-10-7P, Acrylic acid, preparation 79-41-4P, Methacrylic acid,
preparation 96-49-1P, Ethylene carbonate 100-42-5P, Styrene,
preparation 106-99-0P, Butadiene, preparation 107-02-8P, Acrolein,
preparation 107-21-1P, Ethylene glycol, preparation 108-05-4P, Vinyl
acetate, preparation 108-32-7P, Propylene carbonate 110-00-9P, Furan
115-11-7P, Isobutylene, preparation 141-78-6P, Ethyl acetate,
preparation 4170-30-3P, Crotonaldehyde 9002-88-4P, Polyethylene
9003-07-0P, Polypropylene 25265-75-2P, Butanediol 35296-72-1P, Butanol
RL: IMF (Industrial manufacture); PREP (Preparation)

(comps. comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)

IT 74-85-1P, Ethylene, preparation 115-07-1P, Propylene, preparation
25167-67-3P, Butene
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)

(comps. comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)

IT 67-63-0, Isopropanol, reactions 71-43-2, Benzene, reactions 74-84-0,
Ethane, reactions 74-98-6, Propane, reactions 75-28-5, Isobutane
78-78-4, Isopentane 106-97-8, n-Butane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

(comps. comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Basf Ag; WO 9942404 A 1999 HCAPLUS
- (2) Stepanov, G; US 3678124 A 1972
- (3) Sun Co Inc R & M; EP 0661254 A 1995 HCAPLUS

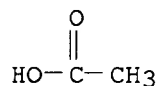
IT 25519-10-2D, Erbium acetate, hydrate

RL: CAT (Catalyst use); USES (Uses)

(comps. comprising nickel and their use as catalyst in oxidative dehydrogenation of alkanes)

RN 25519-10-2 HCAPLUS

CN Acetic acid, erbium(3+) salt (8CI, 9CI) (CA INDEX NAME)



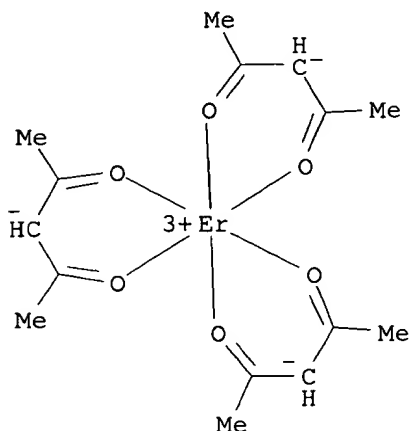
● 1/3 Er(III)

L13 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:434638 HCAPLUS

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

DN 127:153453
ED Entered STN: 12 Jul 1997
TI Synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3
AU Zhang, Jimei; Wang, Jiankun; Ma, Yijing
CS Dep. Materials Sci., Tianjin Inst. Textile Sci. & Technol., Tianjin, 300160, Peop. Rep. China
SO Fangzhi Gaoxiao Jichu Kexue Xuebao (1997), 10(1), 59-64
CODEN: FGJXFE; ISSN: 1006-8341
PB Fangzhi Gaoxiao Jichu Kexue Xuebao Bianjibu
DT Journal
LA Chinese
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 23, 78
AB Make every oxide of rare earth metals (La, Ce, Pr, Nd, Sm, Gd, Dy, Ho, Er, Yb) dissolve in aqueous HCl and then drip NH3 solution of β -acetylacetone to this solution Control pH over precipitating pH of corresponding rare earth metal
hydroxide and stir this solution for 5.apprx.8 h. Filtering the mixture and the solid is the rare earth 2,4-pentadionate (I). By means of measurement of rare earth content and anal. of C and H content, the **composition** of I can be decided. By measurement of the m.ps. of I, we can prove this **composition** and find how "the Lanthanide Contract" influences m.p. Oligomerization of propylene was studied using a triple catalyst system consisting of rare earth 2,4-pentadionate, triphenylphosphine, and ethylaluminum sesquichloride. It was known that the catalyst activity changed with the electronic structure of the rare earth elements. The distribution of contents of dimer products was similar.
ST rare earth acetylacetonate catalyst propene dimerization; oligomerization propene rare earth acetylacetonate catalyst
IT Polymerization catalysts
(oligomerization; synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3)
IT Dimerization catalysts
Electronic structure
(synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3)
IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oligomerization of; synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3)
IT 603-35-0, Triphenylphosphine, uses 12075-68-2, Ethylaluminum sesquichloride
RL: CAT (Catalyst use); USES (Uses)
(synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3)
IT 14284-87-8P 14284-88-9P 14284-98-1P **14553-08-3P**
14553-09-4P 14589-33-4P 14589-38-9P 14589-42-5P 14637-88-8P
15653-01-7P
RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3)
IT **14553-08-3P**
RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of rare earth 2,4-pentadionate and oligomerization of propylene catalyzed by RE(acac)3)

RN 14553-08-3 HCAPLUS

CN Erbium, tris(2,4-pentanedionato- κ O, κ O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

L13 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:327562 HCAPLUS

DN 126:317712

ED Entered STN: 23 May 1997

TI Polymerization of methyl methacrylate by Ln(acac)₃-BuMgCl catalysts

AU Sun, Junquan; Pan, Zhida

CS Dep. Polymer Sci. Eng., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China

SO Yingyong Huaxue (1997), 14(2), 1-4

CODEN: YIHUED; ISSN: 1000-0518

PB Yingyong Huaxue Bianji Weiyuanhui

DT Journal

LA Chinese

CC 35-3 (Chemistry of Synthetic High Polymers)

AB New catalysts composed of Ln(acac)₃ and BuMgCl have been successfully developed for the polymerization of Me methacrylate (MMA). Effects of various rare earth elements, catalyst aging time and temperature, catalyst concentration,

various solvents, CCl₄ additive, polymerization time and temperature on the polymerization of

MMA were studied in detail. The polymerization conversion of MMA in petroleum ether was higher than that in aromatic hydrocarbons and other polar solvents.

The excessive BuMgCl may act as chain transfer agent. Lower polymerization temperature

is preferable for increasing syndiotactic content of PMMA.

ST polymn catalyst methacrylate trisacetylacetonate rare earth;
butylmagnesium chloride chain transfer agent PMMA

IT Chain transfer agents

(BuMgCl; polymerization of Me methacrylate by Ln(acac)₃-BuMgCl catalysts)

IT Polymerization

Polymerization catalysts

Solvent effect

(polymerization of Me methacrylate by Ln(acac)₃-BuMgCl catalysts)

IT 693-04-9 14284-86-7, Tris(acetylacetonato)europium 14284-87-8,
Tris(acetylacetonato)Gadolinium 14284-88-9,
Tris(acetylacetonato)lanthanum 14284-95-8, Tris(acetylacetonato)terbium

14284-98-1, Tris(acetylacetonato)ytterbium **14553-08-3**,
 Tris(acetylacetonato)erbium 14553-09-4, Tris(acetylacetonato)praseodymium
 14589-38-9, Tris(acetylacetonato)neodymium 14589-42-5,
 Tris(acetylacetonato)samarium 14637-88-8, Tris(acetylacetonato)dysprosium
 15554-47-9, Tris(acetylacetonato)yttrium 15653-01-7,
 Tris(acetylacetonato)cerium

RL: **CAT (Catalyst use)**; USES (Uses)

(polymerization of Me methacrylate by Ln(acac)3-BuMgCl catalysts)

IT 9011-14-7P, PMMA

RL: SPN (Synthetic preparation); PREP (Preparation)

(polymerization of Me methacrylate by Ln(acac)3-BuMgCl catalysts)

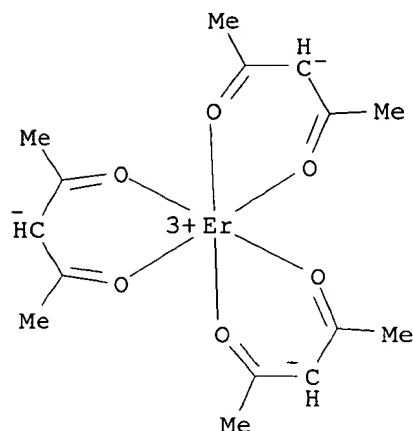
IT **14553-08-3**, Tris(acetylacetonato)erbium

RL: **CAT (Catalyst use)**; USES (Uses)

(polymerization of Me methacrylate by Ln(acac)3-BuMgCl catalysts)

RN 14553-08-3 HCAPLUS

CN Erbium, tris(2,4-pentanedionato-κO,κO')-, (OC-6-11)- (9CI)
 (CA INDEX NAME)



L13 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:748629 HCAPLUS

DN 126:19372

ED Entered STN: 21 Dec 1996

TI the ring-opening polymerization of D,L-lactide with one component rare earth catalyst

AU Sun, Junquan; Wu, Lanting

CS Dep. of Polymer Science and Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China

SO Chinese Journal of Polymer Science (1996), 14(4), 325-329

CODEN: CJPSEG; ISSN: 0256-7679

PB Science Press

DT Journal

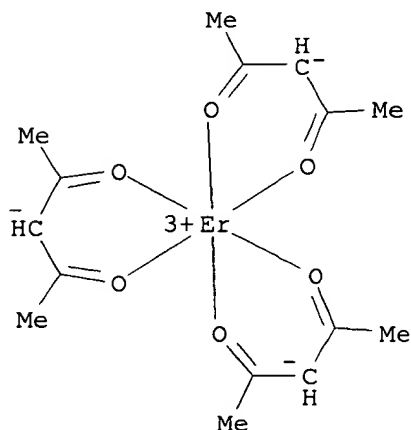
LA English

CC 35-3 (Chemistry of Synthetic High Polymers)

AB (D,L)-Lactide (LA) was polymerized using one component rare earth compound catalysts in solution and in melt. The effects of catalyst/LA molar ratio, solvent, polymerization time and temperature for the rare earth compound catalysts were investigated in detail. The conversion degree and mol. weight of the poly-LA in melt polymerization are higher than in solution polymerization, but the polymerization rate in

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

- the melt is lower. The mol. weight distribution broadens with increasing temperature
- ST lactide polymn rare earth catalyst
- IT Naphthenic acids, uses
RL: CAT (Catalyst use); USES (Uses)
(neodymium salts; catalyst for ring-opening polymerization of lactide)
- IT Polyesters, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation by lactide ring-opening polymerization using 1-component rare earth compound catalysts)
- IT Polymerization kinetics
(ring-opening; of lactide using 1-component rare earth compound catalysts)
- IT Polymerization catalysts
(ring-opening; rare earth compds. for lactide)
- IT **14553-08-3**, Erbium tris(acetylacetonate) 14589-38-9, Neodymium tris(acetylacetonate) 14589-42-5, Samarium tris(acetylacetonate) 15554-47-9, Yttrium tris(acetylacetonate) 19236-15-8, Neodymium triisopropoxide 73227-23-3, Neodymium tris(2-ethylhexanoate)
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst for ring-opening **polymerization** of lactide)
- IT 95-96-5, Lactide
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(kinetics of ring-opening polymerization using 1-component rare earth compound catalysts)
- IT 26023-30-3P, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26680-10-4P, Polylactide
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation by lactide ring-opening polymerization using 1-component rare earth compound catalysts)
- IT **14553-08-3**, Erbium tris(acetylacetonate)
RL: **CAT (Catalyst use)**; USES (Uses)
(catalyst for ring-opening **polymerization** of lactide)
- RN 14553-08-3 HCAPLUS
- CN Erbium, tris(2,4-pentanedionato- κ O, κ O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



L13 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:165018 HCAPLUS

DN 120:165018

ED Entered STN: 02 Apr 1994

TI Ring-opening polymerization of ϵ -caprolactone by rare earth coordination catalysts. I. Characteristics, kinetics, and mechanism of ϵ -caprolactone polymerization with Nd(acac)₃·3H₂O-AlEt₃ system

AU Shen, Zhiqun; Chen, Xianhai; Shen, Youqing; Zhang, Yifeng

CS Dep. Chem., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China

SO Journal of Polymer Science, Part A: Polymer Chemistry (1994), 32(4), 597-603

CODEN: JPACEC; ISSN: 0887-624X

DT Journal

LA English

CC 35-3 (Chemistry of Synthetic High Polymers)

AB Ring-opening polymerization of ϵ -caprolactone (I) was carried out using rare earth coordination catalysts for the first time. The rare earth compds., RE(acac)₃·3H₂O, Nd(P204)₃, Nd(P507)₃, Nd(naph)₃, Nd(BA)₃·2H₂O, etc. (where RE = La, Pr, Nd, Sm, Eu, Gd, Dy, Ho, Er, Lu, Y; acac = acetylacetonate; P204 = (RO)₂P=O-, P507 = RO-POO-, R = CH₃-(CH₂)₃-CH(C₂H₅)-CH₂-, naph = (CH₂)_n-COO-, n = 10-16; BA = benzoylacetone), combined with trialkylaluminum, greatly increased the degree of conversion and the mol. weight of poly-I. The influence of reaction conditions on the polymerization of I catalyzed by the Nd(acac)₃·3H₂O-AlEt₃ system was examined in detail. The kinetics indicates that the polymerization rate was first-order in monomer and

a half-order in catalyst. The overall activation energy of the ring-opening polymerization amts. to 59.4 kJ/mol. By IR and UV-visible spectra, ¹H- and ¹³C-NMR data, it is assumed that the ring-opening polymerization of I catalyzed by the Nd(acac)₃·3H₂O-AlEt₃ system proceeds via complexation of monomer to catalyst, acyl-O cleavage insertion propagation mechanism.

ST caprolactone ring opening polymn kinetics mechanism; polycaprolactone rare earth coordination catalyst

IT Naphthenic acids, compounds

RL: CAT (Catalyst use); USES (Uses)

(neodymium salts, catalysts, containing triethylaluminum, for ring-opening polymerization of caprolactone)

IT Kinetics of polymerization

Polymerization

(ring-opening, of caprolactone, in presence of rare earth coordination compds., mechanism of)

IT Polymerization catalysts

(ring-opening, rare earth coordination compds., for caprolactone, mechanism and kinetics in relation to)

IT 97-93-8, Triethylaluminum, uses 100-99-2, uses

RL: CAT (Catalyst use); USES (Uses)

(catalysts, containing rare earth coordination compound, for ring-opening polymerization of caprolactone)

IT 14284-86-7 14284-87-8 14284-88-9 **14553-08-3** 14553-09-4

14589-33-4 14589-38-9 14589-42-5 14637-88-8 15554-47-9

17966-84-6 38326-04-4 79321-05-4

RL: **CAT (Catalyst use)**; USES (Uses)

(catalysts, containing triethylaluminum, for ring-opening **polymerization** of caprolactone)

IT 14726-20-6

RL: CAT (Catalyst use); USES (Uses)
 (catalysts, containing water and triethylaluminum, for ring-opening polymerization of caprolactone)

IT 24980-41-4P, Poly(ϵ -caprolactone), monomer-based 25248-42-4P, Poly[oxy(1-oxo-1,6-hexanediyl)]

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of, by ring-opening with rare earth coordination catalysts, kinetics and mechanism of)

IT 502-44-3, ϵ -Caprolactone

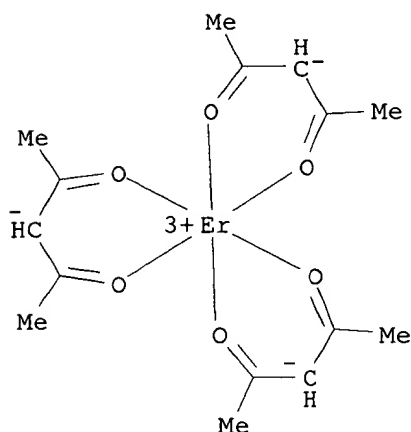
RL: RCT (Reactant); RACT (Reactant or reagent)
 (ring-opening polymerization of, with rare earth coordination catalysts, kinetics and mechanism of)

IT 14553-08-3

RL: CAT (Catalyst use); USES (Uses)
 (catalysts, containing triethylaluminum, for ring-opening polymerization of caprolactone)

RN 14553-08-3 HCAPLUS

CN Erbium, tris(2,4-pentanedionato- κ O, κ O')-, (OC-6-11)- (9CI)
 (CA INDEX NAME)



L13 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:515259 HCAPLUS

DN 115:115259

ED Entered STN: 23 Sep 1991

TI Yttrium and rare earth compound catalysts for lactone polymerization for preparation of biodegradable polyesters

IN McLain, Stephan James; Drysdale, Neville Everton

PA du Pont de Nemours, E. I., and Co., USA

SO PCT Int. Appl., 63 pp.
 CODEN: PIXXD2

DT Patent

LA English

IC ICM C08G063-84
 ICS C08G063-08; C07F005-00; A61K047-48

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 63

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 9105001	A1	19910418	WO 1990-US4951	19900905
	W: AU, BB, BG, BR, CA, FI, HU, JP, KR, LK, MC, MG, MW, NO, RO, SD, SU				
	RW: AT, BE, BF, BJ, CF, CG, CH, CM, DE, DK, ES, FR, GA, GB, IT, LU, ML, MR, NL, SE, SN, TD, TG				
	US 5028667	A	19910702	US 1989-414964	19890929
	CA 2066029	AA	19910330	CA 1990-2066029	19900905
	AU 9066244	A1	19910428	AU 1990-66244	19900905
	EP 493529	A1	19920708	EP 1990-916131	19900905
	EP 493529	B1	19950705		
	R: AT, CH, DE, DK, FR, GB, IT, LI, LU, NL, SE				
	BR 9007686	A	19920818	BR 1990-7686	19900905
	JP 05500982	T2	19930225	JP 1990-514939	19900905
	JP 2858947	B2	19990217		
	DD 298247	A5	19920213	DD 1990-344273	19900928
	ZA 9007797	A	19920527	ZA 1990-7797	19900928
	CN 1051367	A	19910515	CN 1990-108998	19900929
	US 5095098	A	19920310	US 1991-680165	19910403
	US 5028667	B1	19930209	US 1991-90002484	19911021
	NO 9201190	A	19920326	NO 1992-1190	19920326
	FI 9201351	A	19920327	FI 1992-1351	19920327
PRAI	US 1989-414964		19890929		
	WO 1990-US4951		19900905		

AB Lactones or lactides are polymerized to polyesters, useful in the manufacture of

biodegradable materials for medical applications or flexible packaging films, by living ring-opening polymerization using yttrium or rare earth metal catalysts. A 0.08 M solution (1.0 mL) of lanthanum triisopropoxide in PhMe was added to a mixture of 5.35 g ϵ -caprolactone in 40 mL PhMe at -64° , then terminated with HCl after 5 min, giving 4.52 g polymer with number-average mol. weight 16,800 and polydispersity 4.18.

ST lactone living ring opening polymn; yttrium catalyst polymn lactone; rare earth catalyst polymn lactone; biodegradable polyester manuf catalyst; lactide living ring opening polymn; lanthanum isopropoxide catalyst polymn; caprolactone living polymn catalyst

IT Biodegradable materials
(lactone or lactide-based polyesters as)

IT Rare earth metals, compounds

RL: CAT (Catalyst use); USES (Uses)

(compds., catalysts, for living ring-opening polymerization of lactones or lactides)

IT Polyesters, preparation

RL: PREP (Preparation)

(lactone-based, preparation of, by living ring-opening polymerization, catalysts for)

IT Polymerization catalysts

(living, ring-opening, yttrium or rare earth metal compds., for lactones or lactides)

IT 2172-12-5, Yttrium triisopropoxide 3504-40-3, Samarium triisopropoxide 14814-07-4 19446-52-7, Lanthanum triisopropoxide 41705-67-3 41836-28-6 115668-54-7 135796-05-3, Yttrium bis(2,2,6,6-tetramethylheptane-3,5-dionate)isopropoxide 135796-07-5

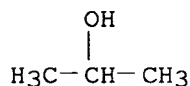
RL: CAT (Catalyst use); USES (Uses)

(catalysts, for living ring-opening polymerization of lactones or lactides)

IT 9051-89-2P 26354-94-9P 26499-05-8P, Poly[oxy(1-oxo-1,5-pentanediy)]

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of, by living ring-opening polymerization, catalysts for)
IT 14652-90-5P 135796-03-1P, Yttrium tris(4-hydroxymethylbenzyloxy)
135796-04-2P, Yttrium tris(2-N,N-dimethylaminoethoxide) 135796-06-4P
135796-08-6P 135796-09-7P, Yttrium tris(2-phenylthioethoxide)
135796-10-0P 135796-11-1P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of, for catalysts, for living ring-opening polymerization of
lactones
or lactides)
IT 24980-41-4P 25038-75-9P 25248-42-4P, ϵ -Caprolactone
homopolymer, sru 26009-03-0P, Poly[oxy(1-oxo-1,2-ethanediyl)]
26161-42-2P 26202-08-4P 26917-25-9P 33135-50-1P, S-Lactide
homopolymer 111821-20-6P 135796-12-2P
RL: PREP (Preparation)
(preparation of, by living ring-opening polymerization, catalysts for)
IT 589-29-7, 1,4-Benzenedimethanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with tris(trimethylsilylmethyl)bis(tetrahydrofuranyl)yttr
ium)
IT 14814-07-4
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for living ring-opening **polymerization** of lactones or
lactides)
RN 14814-07-4 HCAPLUS
CN 2-Propanol, erbium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Er(III)

L13 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:120283 HCAPLUS
DN 106:120283
ED Entered STN: 17 Apr 1987
TI Crystalline active catalytic species of the coordination catalyst based on
rare earth
AU Li, Xingmin; Sun, Yufang; Jin, Yingtai
CS Changchun Inst. Appl. Chem., Acad. Sin., Changchun, Peop. Rep. China
SO Huaxue Xuebao (1986), 44(11), 1163-6
CODEN: HHHPA4; ISSN: 0567-7351
DT Journal
LA Chinese
CC 35-3 (Chemistry of Synthetic High Polymers)
AB Four active catalytic species of rare earth coordination catalysts were
isolated from (Me₂CHO)₃Ln-Et₂AlCl [96-10-6]-Et₃Al [97-93-8] and
(Me₂CHO)₂LnCl-Et₃Al systems (Ln = Gd, Dy, Er, or Tm). Polymerization of
butadiene and isoprene in the presence of the complex catalysts gave
polymers with high cis-1,4 content. The activity of the rare earth
comps. decreased in the order: Gd > Dy > Er. Tm gave low polymerization
activity. A double bridged structure of the lanthanide complexes was
proposed.

ST lanthanide polymn catalyst butadiene isoprene; aluminum polymn catalyst butadiene isoprene; polybutadiene prepn catalyst lanthanide aluminum; polyisoprene prepn catalyst lanthanide aluminum

IT Rare earth metals, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, for stereospecific polymerization of butadiene and isoprene)

IT Polymerization catalysts
 (stereospecific, aluminum-rare earth compds., for butadiene and isoprene)

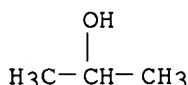
IT 96-10-6, Diethylaluminum chloride, uses and miscellaneous 97-93-8, Triethylaluminum, uses and miscellaneous 6742-68-3 14532-05-9
14814-07-4 30276-24-5 107370-17-2 107370-18-3 107370-19-4 107370-20-7
 RL: **CAT (Catalyst use)**; USES (Uses)
 (catalysts, for **polymerization** of butadiene and isoprene)

IT 9003-17-2P, Polybutadiene 9003-31-0P, Polyisoprene
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (of cis-1,4-configuration, preparation of, catalysts for)

IT **14814-07-4**
 RL: **CAT (Catalyst use)**; USES (Uses)
 (catalysts, for **polymerization** of butadiene and isoprene)

RN 14814-07-4 HCAPLUS

CN 2-Propanol, erbium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Er(III)

L13 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1979:122105 HCAPLUS

DN 90:122105

ED Entered STN: 12 May 1984

TI Alkyl bridged complexes of the group 3B and lanthanoid metals as homogeneous ethylene polymerization catalysts

AU Ballard, Denis G. H.; Courtis, Andrew; Holton, John; McMeeking, John; Pearce, Ronald

CS Corp. Lab., ICI Ltd., Runcorn, UK

SO Journal of the Chemical Society, Chemical Communications (1978), (22), 994-5
 CODEN: JCCCAT; ISSN: 0022-4936

DT Journal

LA English

CC 35-3 (Synthetic High Polymers)
 Section cross-reference(s): 29, 67

AB Six alkyl-bridged lanthanoid metal complexes, e.g., [Er(η-C₅H₅)₂Me]₂ (C₅H₅ = cyclopentadienyl) [61127-35-3], and Y(η-C₅H₄SiMe₃)₂Me₂AlMe₂ [69424-78-8] catalyzed the polymerization of CH₂:CH₂. An intramol. deactivation process occurs in the reaction by abstraction of a cyclopentadienyl H which is completely suppressed with peralkylated derivs.

ST yttrium catalyst ethylene polymn; ethylene polymn lanthanoid catalyst

IT Polymerization catalysts
 (alkyl-bridged erbium and yttrium complexes, for ethylene)

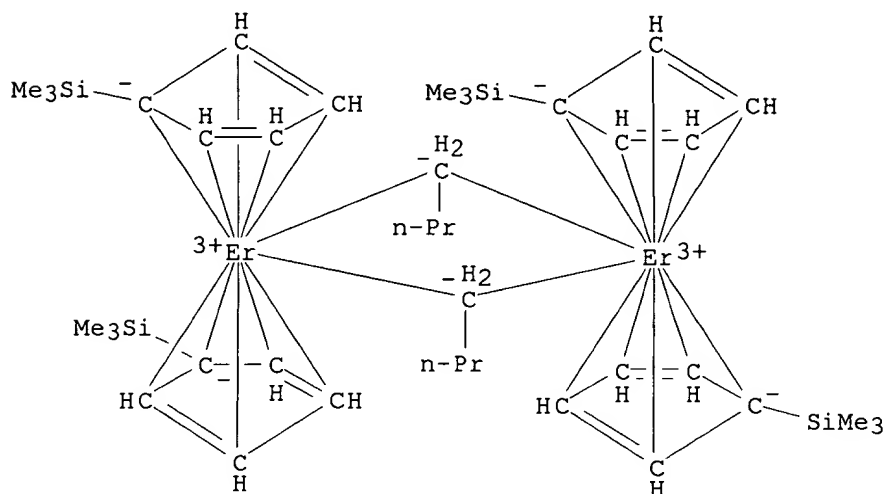
IT 61127-35-3 69424-75-5 **69424-76-6** **69424-77-7**
 69424-78-8 69438-80-8 69438-81-9
 RL: **CAT (Catalyst use)**; USES (Uses)
 (catalysts, for **polymerization** of ethylene)

IT 9002-88-4P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (manufacture of, erbium and yttrium complex catalysts for)

IT **69424-76-6** **69424-77-7**
 RL: **CAT (Catalyst use)**; USES (Uses)
 (catalysts, for **polymerization** of ethylene)

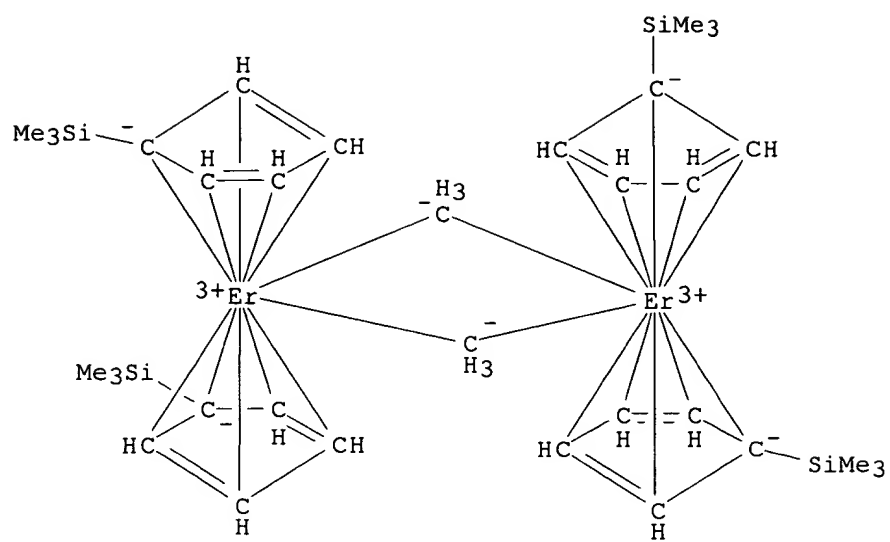
RN 69424-76-6 HCAPLUS

CN Erbium, di- μ -butyltetrakis[(1,2,3,4,5- η)-1-(trimethylsilyl)-2,4-cyclopentadien-1-yl]di- (9CI) (CA INDEX NAME)



RN 69424-77-7 HCAPLUS

CN Erbium, di- μ -methyltetrakis[(1,2,3,4,5- η)-1-(trimethylsilyl)-2,4-cyclopentadien-1-yl]di- (9CI) (CA INDEX NAME)



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